



# Bridging the Gap

Your Connection to Engineering Services

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## Gleason Beach Bridge Project

What maintenance does an over 70-year-old bridge need? Highway 1, built in the 1950s, travels along Sonoma County's coastal bluff until it dips across Scotty Creek at Gleason Beach through a 32-foot four-cell reinforced concrete box culvert. Because of years of erosion from storms and the ocean, this coastal bridge needed repairs. The Gleason Beach Project replaced the existing crossing with a new 850-foot-long bridge, restoring the creek channel.

Since the early 2000s, several emergency projects have been issued to install a series of retaining structures along this one-mile stretch of highway, only to be subject to erosion and ultimately compromised by storm surges and wave action. Due to this continued erosion, the "Gleason Beach Project" was created, and it realigned Highway 1 up to 300 feet inland away from the eroding coastal bluffs. As part of this project, Caltrans built a new road alignment and bridge inland away from 100 years of protected bluff retreat. It was high enough to offset sea level rise into the Scotty Creek River basin.

Late into the 2021 construction season, Caltrans installed over 100 feet deep, 84-inch diameter cast-in-drilled hole foundation elements, falsework pads in the wetland areas ahead of seasonal closures, and falsework to support the new superstructure which extended into the early spring of 2022.

The superstructure included building a new prestress cast-in-place box girder bridge structure with a reverse or "S" curve with up to 12 percent cross-slope. To keep the superstructure section shallow both longitudinal and transverse post-tensioning were utilized. A spandrel rib arch system was constructed as an architectural feature between the two column bents which totaled six. Caltrans included a separate six-foot-wide pedestrian path with six outlooks on the 50-foot-wide bridge along the southbound ocean side lane.

One of the project's many challenges included ensuring the falsework did not experience excessive settlement in the wetland environment.



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Caltrans ordered a series of ground load tests, which widened falsework pads beyond the initial design widths shown in the contractor's plan. This change was implemented to increase the load-bearing capacity of the falsework pads. The nearly 850-foot-long falsework system that crossed wetlands, a creek, drainage ditches, and an active property driveway, was safely installed and loaded with no unexpected settlement.

During construction, winter storms compromised the existing highway and overtopped the bank throughout the project. The contractor worked multiple accelerated schedule pushes to complete the bridge superstructure between April and October 2022 and removed the falsework before the October seasonal wetland work restriction. The accelerated work allowed the project to shift the existing lanes to the new alignment and prevent any potential new closures and long detours. The schedule also allowed the removal of the falsework before the rainy season.

The Gleason Beach Project successfully met project goals, placing a new bridge over wetlands and Scotty Creek in just 14 months while respecting the environmental commitments' sensitivity. The bridge was opened to traffic in January 2023. Want to join our team to work on projects just like this? Visit [Working with the Division of Engineering Services](#) for more information.

